

REMARKS

Claims 1-3, 7 and 8 are amended (where dependent claim 8 is here re-presented as claim 30); claims 4-6, and 9-20 are cancelled; and claims 21-29 and 31-33 are added to more clearly define our invention and to more positively avoid the references cited by the
5 Examiner.

Except for claim 29, each of the claims 1-3, 21-28 and 30-33 now in the application recites the limitations recited in claims 6 and 14, claims which are considered to be allowable by the Examiner if rewritten in independent form.

In our invention, the solenoid coil is used for a dual purpose; first, to actuate a
10 plunger to trip the GFCI; and, second, to protect the GFCI from electrical transients in the line conductors to the GFCI. The solenoid coil is connected in series with a capacitor to form a series L-C circuit, and this series L-C circuit is connected between the phase- neutral conductors of the AC line to the GFCI. The remainder of the GFCI circuitry is connected in parallel with the capacitor itself. The series L-C circuit is a low-pass filter which allows low
15 frequency voltage signals to pass through to the GFCI circuit while blocking high frequency signals. This occurs because the impedance of a capacitor decreases as the frequency of the signal increases. Thus, when a high frequency voltage signal occurs, the capacitor shunts most of the signal to shunt it around the GFCI. The coil absorbs the current transients (spikes) as opposed to the capacitor which absorbs the voltage transients.

20 Thus, the coil and the capacitor operate as a first mode of surge suppression.

The second mode of surge suppression is obtained by placing a metal oxide varistor (MOV) across the capacitor of the first mode of surge protection. When a moderate over voltage condition occurs, the MOV conducts to shunts the current around the capacitor. Thus, if the voltage rating of the capacitor is exceeded, it will be protected by the MOV.

25 The third mode of surge suppression is obtained by placing a spark gap device across the phase and neutral conductors on the line side of both the L-C circuit and the GFCI. With the spark gap device, when a severe over voltage condition occurs, the voltage will jump

across the gap of the spark gap device and shunted away from all the downstream electrical components; the L-C circuit, the MOV and the GFCI.

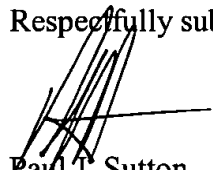
The art of record neither discloses nor suggests doing what we disclose and now claim as our invention.

5 Applicant respectfully submits that the application is now in condition for allowance and respectfully requests early and favorable action by the Examiner. If, however, the Examiner believes that an unresolved issue still remains, then the undersigned attorney would appreciate receiving a call from the Examiner to help resolve the issue.

10 The commissioner is hereby authorized to charge any fees which may be required for this amendment, or credit any overpayment to Deposit Account No. 12-1185.

 As an extension of time is required to make this Request For Continued Examination under 37 CFR 1.114. After Final Rejection timely filed, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any
15 overpayment for the extension of time to deposit Account No. 12-1185.

Respectfully submitted,


Paul J. Sutton
Reg. No. 24,201

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Greenberg Traurig, LLP
885 Third Avenue
New York, New York 10022
25 (212) 801-2108